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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGUYEN, THANH

ART UNIT PAPER NUMBER

2144

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/996,308

Applicant(s)

ISHIZAKI, TAKESHI

Examiner

Tammy T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____



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Detailed Office Action

1. This action is in response to the amendment filed on March 24, 2005.
2. Claims **1-22** are pending.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Raab et al.
(USPN 5,751,967 – Date of Patent: May 12, 1998, herein referred to as “Raab”).
5. As to claim 21, Raab teaches the invention as claimed, including a method of controlling accesses from servers at a disk subsystem, wherein the disk subsystem is connected to a virtual local area network (VLAN) switch via a VLAN trunk and receives access requests from the servers via the VLAN switch and the VLAN trunk,

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the method comprising the steps of: allocating a dedicated storage resource to each VLAN segment (see col.15, line 45 to col.16, line 65), receiving a Internet Protocol (IP) packet based access from a server (see col.17, lines 10-32, and col.19, lines 10-15), determining a VLAN segment that the server belongs to, based on a VLAN identification in the IP packet (See col. 15, line 45 to col.16, line 65, col.17, lines 10-32, and col.19, lines 10-15), and permitting the server to access the dedicated storage resource allocated to the VLAN segment that the server belongs to, and preventing another server that does not belong to the VLAN segment from accessing the dedicated storage resource (see col.15, line 45 to col.16, line 65).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raab et al., (hereinafter Raab) U.S. Patent No. 5,751,967 in view of Aziz et al., (hereinafter Aziz) U.S. Patent No. 6,597,956.

8. As to claim 1, Raab teaches the invention as claimed, including a storage apparatus, comprising: a processor (Fig.2, 202); a memory (Fig.2, 204); at least one storage device (Fig.2, 207) (see col.6, lines 26-58); a network interface connectable to a virtual local area network (VLAN) switch (fig.4) (see col.1, lines 15-45, and col.5, lines 60-67); wherein the processor is at least intermittently coupled to the memory, the storage controller and the network interface (fig.2); wherein the memory comprises configuration information including a correspondence between at least one segment of a virtual local area network (VLAN) connectable by the network interface and at least one of a plurality of storage devices (see col.4, lines 20-60, and col.5, line 60 to col.6, line 48); and wherein the processor, the memory, the storage controller and the network interface are operable to control the virtual local area network (VLAN) switch to map the at least one segment, and based upon the configuration information (see col.5, line 20 to col.6, line 48, col.8, lines 53-67, col.15, line 58 to col.17, line 10). But Raab does not explicitly teach a storage controller, coupled with the at least one storage device, and at least one of a plurality of virtual volume. However, Aziz teaches a storage controller coupled with the at least one storage device, and at least one of a plurality of virtual volume (Fig.19, cursor control 1916) (Fig.15, virtual volume) (see col.2, lines 4-32). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have a storage controller, and virtual volume because it would have provided secured communications in transmitting data information over the Internet.

9. As to claim 2, Raab teaches the invention as claimed, further comprising an out of band management interface connectable to a second network (Fig.4).
10. As to claim 3, Raab teaches the invention as claimed, wherein the network interface connectable to a virtual local area network (VLAN) switch comprises an interface to a VLAN trunk line (see col.16, line 65 to col.17, line 10).
11. As to claim 4, Raab teaches the invention as claimed, wherein information carried by the VLAN trunk line is identified using an embedded tag (see col.17, lines 1-17).
12. As to claim 5, Raab teaches the invention as claimed, wherein the network interface connectable to a virtual local area network (VLAN) switch comprises an interface to a VLAN switch, the VLAN switch connectible to at least one host computer via at least one VLAN access link (Fig.4, plurality access links).
13. As to claim 6, Raab teaches the invention as claimed, wherein information carried by the at least one VLAN access links comprises untagged frames (see col.5, lines 1-19, and col.6, line 59 to col.7, line 20).

14. As to claim 7, Raab teaches the invention as claimed, wherein information carried by the at least one VLAN access link is identified using a VLAN Identifier of a receiving port (see col.6, lines 1-25, and col.12, lines 15-32).
15. As to claim 8, Raab teaches the invention as claimed, wherein information carried by the at least one VLAN access link is identified using a Media Access Control (MAC) address (see col.2, lines 55-65, and col.6, lines 10-27).
16. As to claim 9, Raab teaches the invention as claimed, wherein an untagged frame comprises: a preamble field; a source MAC field; a destination MAC field; a type field; a data field; and a CRC field (see col.2, lines 55-65, and col.6, lines 10-27).
17. As to claim 10, Raab teaches the invention as claimed. Including a method, comprising: mapping to form a configuration (see col.6, lines 48, and col.8, lines 51-67); and routing information upon the configuration (see col.4, line 61 to col.5, line 19). But Raab does not explicitly teach a first virtual local area network and a second virtual local area network, and separating logically a storage device into a plurality of virtual volumes, including a first virtual volume and a second virtual volume, and the first virtual local area network to the first virtual volume and the second virtual local area network to the second virtual volume, and preventing communication from the first virtual local area network to the second virtual volume and from the second virtual local area network to the first virtual volume. However, Aziz teaches a first

virtual local area network and a second virtual local area network, and separating logically a storage device into a plurality of virtual volumes, including a first virtual volume and a second virtual volume, and first virtual local area network to the first virtual volume and the second virtual local area network to the second virtual volume, and preventing communication from the first virtual local area network to the second virtual volume and from the second virtual local area network to the first virtual volume (Fig.15, Vlan switch connect to virtual volume) (see col.2, lines 4-32). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have a first virtual local area network to the first virtual volume and the second virtual local area network to the second virtual volume because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.

18. As to claim 11, Raab teaches the invention as claimed, further comprising at least one of: configuring network parameters; configuring a new file system; configuring a designated file system; and deleting a designated file system (see col.6, lines 45-59, and col.7, lines 51-67).
19. As to claim 12, Raab teaches the invention as claimed, further comprising at least one of: updating a management interface IP address; updating a physical network interface IP address; updating a VLAN interface IP address and a VLAN tag; deleting

a designated VLAN interface; and adding a new VLAN interface (see col.2, line 55 to col.3, line 5).

20. As to claim 13, Raab teaches the invention as claimed, further comprising at least one of: adding a VLAN to a file system; removing a VLAN from the file system; adding a volume to the file system; and removing a volume from the file system (see col.6, lines 45-59, and col.7, lines 51-67).
21. As to claim 14, Raab does not explicitly teach authenticating user authority.
However, Aziz teaches authenticating user authority (see col.2, line 25 to col.3, line 5). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have an authenticating user authority because it would have provided somebody who have this right or power by law.
22. As to claim 15, Raab teaches the invention as claimed, including a computer program product, comprising: code for sending and receiving tagged frames to and from a network interface (see col.5, lines 1-19, and col.6, line 59 to col.7, line 20); code for managing a file system (see col.7, lines 1-59 and col.8, lines 20-50), and code for routing information, and a computer readable storage medium for holding the codes (see col.3, line 56 to col.4, line 38, and col.4, line 61 to col.5, line 20). But Raab does not explicitly teach a virtual volume within the file system; code for controlling data

transfer between the network interface and a storage controller of the file system, and a virtual local area network to a virtual volume in the file system, and preventing communication from at least one other virtual local area network to virtual volume based upon a configuration. However, Aziz teaches a virtual volume within the file system; code for controlling data transfer between the network interface and a storage controller of the file system, and a virtual local area network to a virtual volume in the file system, and preventing communication from at least one other virtual local area network to virtual volume based upon a configuration (Fig. 15, Vlan switch connect to virtual volume) (see col.2, lines 4-32, col.5, line 20 to col.6, line 48, col.8, lines 53-67, col.15, line 58 to col.17, line 10). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have a first virtual local area network to the first virtual volume and the second virtual local area network to the second virtual volume because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.

23. As to claim 16, Raab teaches the invention as claimed, further comprising at least one of: code for receiving configuration information for the file system; code for receiving configuration information for the virtual local area network (see col.3, line 56 to col.4, line 38). But Raab does not explicitly teach receiving configuration information for the virtual volume. However, Aziz teaches receiving configuration information for the virtual volume (see col.2, lines 4-32, col.5, line 20 to col.6, line

- 48). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have receiving configuration information for the virtual volume because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.
24. As to claim 17, Raab teaches the invention as claimed, further comprising at least one of: code for updating configuration information for the file system; code for updating configuration information for the virtual volume; and code for updating configuration information for the virtual local area network (see col.7, lines 1-35, and col.8, lines 20-50).
25. As to claim 18, Raab teaches the invention as claimed, including a computer apparatus, comprising: a means for processing information (Fig.2, 202); a means for connecting to a virtual local area network (VLAN) switch (Fig.4, Vlan devices 410) (see col.1, lines 15-45, and col.5, lines 60-67); wherein the means for processing and the means for connecting to a virtual local area network (VLAN) switch are connectable to an external storage device having at least one virtual volume mapped one segment of a virtual local area network (VLAN) based upon configuration information,(see col.5, line 44 to col.6, lines 58, col.7, line 10 to col.8, line 67). But Raab does not explicitly teach one volume, and thereby preventing communication between another segment of another VLAN and the at least one virtual volume.

However, Aziz teaches one volume, and thereby preventing communication between another segment of another VLAN and the at least one virtual volume (see col.2, lines 4-32, col.5, line 20 to col.6, line 48). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have a plurality of volumes because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.

26. As to claim 19, Raab teaches the invention as claimed, including a storage apparatus, comprising: a means for processing information (Fig.2, 202); a means for storing data (Fig.2, 207) (see col.6, lines 26-58); a means for connecting to a virtual local area network (VLAN) switch (Fig.4 Vlan device 410) (see col.1, lines 15-45, and col.5, lines 60-67); wherein the means for processing, the means for connecting to a virtual local area network (VLAN) switch map one segment of a virtual local area network (VLAN) for storage data based upon configuration information (see col.5, line 20 to col.6, line 48, col.8, lines 53-67, col.15, line 58 to col.17, line 10). But Raab does not explicitly teach a storage controller, coupled with the at least one of a plurality of storage devices, and at least one virtual volume, preventing communication between another segment of another VLAN and the at least one virtual volume. However, Aziz teaches a storage controller coupled with the at least one storage device, and at least one virtual volume, preventing communication between another segment of another VLAN and the at least one virtual volume (Fig.19, cursor control 1916)

(Fig.15, virtual volume) (see col.2, lines 4-32). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have a storage controller, and virtual volume because it would have provided secured communications in transmitting data information over the Internet.

27. As to claim 20, Raab teaches the invention as claimed, including a system, comprising: a storage device (Fig.2, 207) (see col.6, lines 26-58); a virtual local area network (VLAN) switch, coupled to the storage device (Fig.4, Vlan devices 410) (see col.1, lines 15-45, and col.5, lines 60-67); and at least one segment coupled to the virtual local area network (VLAN) switch via at least one virtual local area network (Fig.4 VLAN devices); wherein the storage device is operable to control the virtual local area network (VLAN) switch to map the at least one segment of the at least one virtual local area network, and at least one virtual volume or the storage device based upon configuration information (see col.5, line 20 to col.6, line 48, col.8, lines 53-67, col.15, line 58 to col.17, line 10). But Raad does not explicitly teach plurality of volumes, prevent another segment of another VLAN from communicating with the at least one virtual volume of the storage device. However, Azib teaches plurality of volumes, prevent another segment of another VLAN from communicating with the at least one virtual volume of the storage device (see col.2, lines 4-32, col.5, line 20 to col.6, line 48). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer

system of Aziz to have a plurality of volumes because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.

28. As to claim 22, Raab teaches the invention as claimed, including a method, comprising: separating a virtual LAN into a plurality of segments (see col.15, line 45 to col.16, line 65); mapping each one of the plurality of segments to a storage device (see col.6, lines 10-48 and col.8, lines 52-67); and assigning to each one of the plurality of segments, such that a virtual volume will communicate only with a segment to which it is assigned (see col.15, line 45 to col.16, line 65). But Raab does not explicitly teach one virtual volumes. However, Aziz teaches one virtual volumes (see col.2, lines 4-32, col.5, line 20 to col.6, line 48). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Raab into the computer system of Aziz to have virtual volume because it would have provided fixed amount of storage in communications in transmitting data information over the Internet.

Response to Arguments

29. Applicant's arguments filled on March 24, 2005 have been fully considered, however they are not persuasive because of the following reasons:

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30. Applicants argue that Raab does not teach allocating dedicated storage resources to a VLAN segment to virtual storage volumes in a storage system. In response to Applicant's argument, the Patent Office maintain the rejection because Raab teaches allocating dedicated storage resources to a VLAN segment to virtual storage volumes in a storage system as shown in col.15, line 45 to col.16, line 65. Raab clearly shows allocating dedicated storage resources to a VLAN segment to virtual storage volumes in a storage system.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

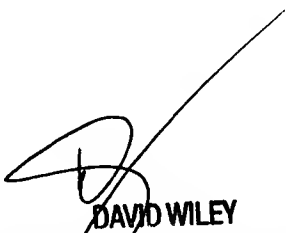
32. Any inquiries concerning this communication or earlier communications from the

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examiner should be directed to **Tammy T. Nguyen** who may be reached via telephone at **(571) 272-3929**. The examiner can normally be reached Monday through Friday between 8:00 a.m. and 5:00 p.m. eastern standard time.

If you need to send the Examiner, a facsimile transmission regarding this instant application, please send it to **(703) 872-9306**. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, David Wiley, may be reached at **(571) 272-3923**.

TTN
July 6, 2005


DAVID WILEY
SUPERVISORY PATENT EXAMINER
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